

CLAIMS

What is claimed is:

1. A method of manufacturing a color electrophoretic display comprising the steps of:

(a) providing a substrate having at least two electrodes disposed thereon;

(b) selectively depositing a first plurality of electrophoretic display elements in substantial registration with a first electrode, each of said first plurality of display elements comprising a capsule containing a plurality of a first species of particles, said first species of particles responsive to a first applied electric field and having a first optical property; and

(c) selectively depositing a second plurality of electrophoretic display elements in substantial registration with a second electrode, each of said second plurality of display elements comprising a capsule containing a plurality of a second species of particles, said second species of particles responsive to a second applied electric field and having a second optical property.

2. The method of claim 1, wherein step (a) comprises the step of: providing a substrate having at least two electrodes disposed thereon, at least one of said at least two electrodes having a pre-determined pattern.

3. The method of claim 1, wherein step (a) comprises the steps of:
(a-a) providing a substrate; and
(a-b) depositing at least two electrodes on said substrate.

4. The method of claim 3, wherein step (a-b) comprises depositing at least two electrodes on said substrate, at least one of said at least two electrodes having a pre-determined pattern.

1 5. The method of claim 1, wherein step (b) comprises selectively depositing by ink-
2 jet printing ^{said} a first plurality of electrophoretic display elements in substantial registration
3 with the at least one electrode, each of said first plurality of display elements comprising
4 a capsule containing a plurality of a first species of particles, said first species of particles
5 responsive to a first applied electric field and having a first optical property.

1 6. The method of claim 1, wherein step (b) comprises selectively depositing by
2 screen printing ^{said} a first plurality of electrophoretic display elements in substantial
3 registration with the at least one electrode, each of said first plurality of display elements
4 comprising a capsule containing a plurality of a first species of particles, said first species
5 of particles responsive to a first applied electric field and having a first optical property.

1 7. The method of claim 1, wherein step (b) comprises selectively depositing by
2 gravure printing ^{said} a first plurality of electrophoretic display elements in substantial
3 registration with the at least one electrode, each of said first plurality of display elements
4 comprising a capsule containing a plurality of a first species of particles, said first species
5 of particles responsive to a first applied electric field and having a first optical property.

1 8. The method of claim 1, wherein step (b) comprises:
2 (b-a) providing ^{said} a carrier bearing a first plurality of electrophoretic display elements,
3 each of said first plurality of display elements comprising a capsule containing a plurality
4 of a first species of particles, said first species of particles responsive to a first applied
5 electric field and having a first optical property;
6 (b-b) disposing said carrier adjacent said substrate; and
7 (b-c) applying an electrical signal to said at least one electrode to transfer at least
8 some of said first plurality of electrophoretic display elements from said carrier to said
9 substrate in substantial registration with said at least one electrode.

1 9. The method of claim 8, wherein step (b-a) comprises providing a carrier bearing a ^{said}
2 first plurality of electrophoretic display elements, each of said first plurality of display

3 elements comprising a capsule containing a plurality of a first species of particles and a
4 dyed fluid, said first species of particles responsive to a first applied electric field and
5 having a first optical property.

1 10. The method of claim 8, wherein said first plurality of electrophoretic display
2 elements is held upon said carrier by an applied electric field.

1 11. The method of claim 8, wherein said first plurality of electrophoretic display
2 elements is held upon said carrier by electrostatic forces.

1 12. The method of claim 8, wherein said first plurality of electrophoretic display
2 elements is held upon said carrier by chemical bonding forces.

1 13. The method of claim 8, wherein said first plurality of electrophoretic display
2 elements is held upon said carrier by surface tension.

1 14. The method of claim 8, wherein step (b-a) comprises providing a carrier having a
2 substantially flat surface, and bearing ^{said} a first plurality of electrophoretic display elements,
3 each of said first plurality of display elements comprising a capsule containing a plurality
4 of a first species of particles, said first species of particles responsive to a first applied
5 electric field and having a first optical property.

1 15. The method of claim 8, wherein step (b-a) comprises providing a carrier having a
2 substantially cylindrical surface, and bearing ^{said} a first plurality of display electrophoretic
3 elements, each of said first plurality of display elements comprising a capsule containing
4 a plurality of a first species of particles, said first species of particles responsive to a first
5 applied electric field and having a first optical property.

1 16. The method of claim ⁸ 4, wherein step (b-a) comprises providing a carrier that is a
2 fluid, bearing a first plurality of electrophoretic display elements, each of said first

3 plurality of display elements comprising a capsule containing a plurality of a first species
4 of particles, said first species of particles responsive to a first applied electric field and
5 having a first optical property.

1 17. An electrophoretic display manufactured according to the process of claim 1.

1 18. A method of manufacturing an electrophoretic display comprising the steps of:

2 (a) providing a substrate;

3 (b) selectively depositing in a pre-determined pattern upon said substrate a first
4 plurality of electrophoretic display elements, each of said first plurality of display
5 elements comprising a capsule containing a plurality of a first species of particles, said
6 first species of particles responsive to a first applied electric field and having a first
7 optical property;

8 (c) selectively depositing at least one electrode upon said first plurality of
9 electrophoretic display elements;

10 (d) selectively depositing in a pre-determined pattern upon said substrate a second
11 plurality of electrophoretic display elements, each of said second plurality of display
12 elements comprising a capsule containing a plurality of a second species of particles, said
13 second species of particles responsive to a second applied electric field and having a
14 second optical property; and

15 (e) selectively depositing at least one electrode upon said second plurality of
16 electrophoretic display elements.

1 19. The method of claim 18, wherein step (b) comprises selectively depositing in a
2 pre-determined pattern upon said substrate ^{said} a first plurality of electrophoretic display
3 elements, each of said first plurality of display elements comprising a capsule containing
4 a plurality of a first species of particles and a dyed fluid, said first species of particles
5 responsive to a first applied electric field and having a first optical property.

1 20. The method of claim 18, wherein step (c) comprises selectively depositing at least
2 one electrode upon, and in substantial registration with, said first plurality of
3 electrophoretic display elements.

1 21. A method of manufacturing an electrophoretic display comprising the steps of:
2 (a) providing a substrate;
3 (b) selectively depositing upon said substrate at least two electrodes;
4 (c) selectively depositing a first plurality of electrophoretic display elements in
5 substantial registration with a first electrode, each of said first plurality of display
6 elements comprising a capsule containing a plurality of a first species of particles, said
7 first species of particles responsive to a first applied electric field and having a first
8 optical property; and
9 (d) selectively depositing a second plurality of electrophoretic display elements in
10 substantial registration with a second electrode, each of said second plurality of display
11 elements comprising a capsule containing a plurality of a second species of particles, said
12 second species of particles responsive to a second applied electric field and having a
13 second optical property.

1 22. The method of claim 21, wherein step (b) comprises selectively depositing in a
2 pre-determined pattern upon said substrate at least two electrodes.

1 23. The method of claim 22, wherein step (c) comprises selectively depositing upon,
2 and in substantial registration with, a first electrode a first plurality of electrophoretic
3 display elements, each of said first plurality of display elements comprising a capsule
4 containing a plurality of a first species of particles, said first species of particles
5 responsive to a first applied electric field and having a first optical property.

1 24. A method of manufacturing an electrophoretic display comprising the steps of:
2 (a) providing a first substrate;

3 (b) selectively depositing in a pre-determined pattern upon said first substrate a first
4 plurality of electrophoretic display elements, each of said first plurality of display
5 elements comprising a capsule containing a plurality of a first species of particles, said
6 first species of particles responsive to a first applied electric field and having a first
7 optical property;

8 (c) providing a second substrate;

9 (d) depositing at least one electrode upon said second substrate; and

10 (e) disposing said first substrate adjacent said second substrate with said first plurality
11 of electrophoretic display elements adjacent said at least one electrode.

1 25. The method of claim 24, wherein step (d) comprises depositing at least one
2 electrode upon said second substrate in a pattern substantially calculated to match said
3 pre-determined pattern.